From: Jerry Finlinson
To: Bill Morgan; James Nelson; Ken Nielson
Date: 11/15/2002 4:24 PM
Subject: Jordan rotary actuator for OFA

FYI,
Bill asked me to follow up with Jordan Controls on the SM-5120. In their manual IM-0422 they said it was 20% duty cycle.

I called Greg Stark of Jordan Control 414-461-9200x260.
He said that IM-0422 was in erro and that SM-5120 is a modulating actuator with 2000 starts/hour. The SM-5160 is good for 4000 starts/hr.

Then I asked about amplifiers and pricing. They have analog 8130 and digital 9120 amplifiers, both of which input 4-20mA and output 4-20mA feedback. The amplifier can be mounted integrally on the actuator if the temp is below 150F, or it can be remotely if necessary up to 50 ft away.

The price for integral mounted amplifiers and actuators is

SM-5120-D actuator w/ analog amp $3400
SM-5160-D actuator w/ digital amp $5315

These prices include hand crank, anti condensation heater, 2 yr warranty and feedback.

James thinks we should probably remote mount the amp, because it might get hot from the secondary air. So the price will likely be a little higher.

Let's talk on Monday.
Later, Jerry

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From: James Nelson
To: Jerry Finlinson; Ken Nielson
Date: 3/22/2003 10:44 AM
Subject: M2064B & M2063C JCF changes added
Attachments: 1SGB-M2064B.dwg; 1SGA-M2063C.dwg

Jerry, I copied your changes on 64B onto the file I fixed up for OFA. It appeared to be just the eight little TE,TT blocks, if there was anything else just let me know and I will correct it. It was only a 5 min job.

I put all three of us in the approvals initials block as you will see, but I just left my PE #, any concerns just let me know.

Ken, please remember to add the point IDs before we issue to the master file. I also like the way Jerry adds the cabinet number just above the instrument number.

Thanks again to both of you.

3D PROBE WORK SHEET

PROJECT:--- Inter-Mountain
Date:.... 3/31/2003
Load:..... 50%

Mill: B

STD. TEMP. DEGREES F (t std)	68				
STD. BAROMETRIC PRESSURE " Hg (Pstd)	29.92				
DUCT SIZE (D)	Traverse 22.000	66.000	22.000	66.000	Flow Element
AVERAGE TEMPERATURE DEGREES F (ts)	314				
AVERAGE PRESSURE IN. W.C. (Pg)	40.98				
ACTUAL BAROMETRIC PRESSURE " Hg (Pbar)	25.30				
% O2 (20.95)	20.95				
% N2 (78.09)	78.09				
% CO2 (0.03)	0.03				
% CO (0.0)	0.00				
%A (0.93)	0.93				
% H2O (0.0)	0.00				

CALCULATIONS

	Traverse	Flow Elem.	
DRY MOLE FRACTION OF STACK (Mfd) =	1.000	1.000	
STACK PRESSURE " Hg (Ps) =	28.31	28.31	
DRY MOLECULAR WT. OF STACK GAS Lb / Lb -Mole(Md)=	28.966	28.966	
WET MOLECULAR WT. OF STACK GAS Lb / Lb -Mole (Ms)=	28.966	28.966	
STACK AREA SQ. FT (As) =	10.083	10.083	% Difference
STACK VELOCITY FT/ SEC. (Vs) =	98.07	101.72	
ACTUAL STACK VOLUME (Q acfm) =	59,333	61,541	3.72
DRY STANDARD VOLUMETRIC STACK FLOW (Q scfmd) =	38,307	39,732	3.72
WET STANDARD VOLUMETRIC STACK FLOW (Q scfmw) =	38,307	39,732	3.72
FLOW IN LBS/HR (wet) =	172685	179108	3.72
FLOW IN LBS/HR (dry) =	172685	179108	3.72

GAS DENSITY AT ACTUAL CONDITIONS, LBS/CU.FT.(wet)	0.048506
GAS DENSITY AT STANDARD CONDITIONS, LBS/CU.FT. (wet)	0.075132
GAS DENSITY AT STANDARD CONDITIONS, LBS/CU.FT. (dry)	0.075132

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<date>

Port #	Depth#	Probes Vp In. W.C.	Measured Yaw Angle Degrees	Air Temp. °F	P1 - P23 In.W.C.	Pitch Press. P4 - P5 In.W.C.	P1-Patm (P1) In. W.C.	P23-Patm Ps Choke In w.c.	From Chart P1-Pt/Pt-Ps TP Coeff.	TP Coeff. * Corrected Pv P1-Pt	(P1-Patm) Minus P1-Pt	P23 Corrected In w.c.	Calculated P4-P5/P1-P23 F1	From Chart Pitch Angle Degrees	From Chart Pt-Ps/P1-P23 (F2)^2	Corrected Pv Pt-Ps In.W.C.	Resultant Angle Degrees	Traverse Point Velocity
1	1	1.484	-6.00	313.91	1.533	0.031	43.22	41.65	-0.006	-0.009	43.23	41.38	0.022	1.427	0.973	1.492	6.17	100.80
	2	1.498	-6.00	313.91	1.567	0.114	43.54	41.95	-0.008	-0.013	43.55	41.67	0.071	5.835	0.974	1.526	8.36	101.40
	3	1.488	6.00	313.91	1.465	0.114	43.79	42.31	-0.009	-0.012	43.80	42.05	0.078	6.511	0.974	1.418	8.85	97.56
	4	1.491	3.00	313.91	1.394	0.141	43.73	42.50	-0.010	-0.012	43.74	42.29	0.118	10.008	0.979	1.169	10.44	88.15
2	1	1.499	-4.00	313.91	1.552	0.020	44.31	42.75	-0.004	-0.006	44.32	42.46	-0.013	-1.497	0.975	1.514	4.27	101.69
	2	1.513	-7.00	313.91	1.589	0.007	44.35	42.76	-0.005	-0.008	44.36	42.48	0.004	-0.046	0.974	1.528	7.00	101.70
	3	1.511	6.00	313.91	1.554	0.024	43.83	42.26	-0.006	-0.008	43.84	41.99	0.015	0.898	0.973	1.513	6.07	101.44
	4	1.527	13.00	313.91	1.215	0.279	43.50	42.25	-0.010	-0.013	43.51	42.04	0.229	17.674	1.004	1.220	21.82	85.05
3	1	1.527	2.00	313.91	1.693	-0.056	45.50	43.90	-0.003	-0.004	45.50	43.62	-0.041	-3.760	0.978	1.558	4.26	103.02
	2	1.502	3.00	313.91	1.526	-0.058	44.43	42.89	-0.003	-0.004	44.43	42.62	-0.038	-3.497	0.978	1.492	4.61	100.90
	3	1.501	4.00	313.91	1.508	-0.023	43.54	42.01	-0.004	-0.006	43.55	41.74	-0.015	-1.692	0.976	1.469	4.34	100.27
	4	1.496	22.00	313.91	1.158	0.233	42.71	41.53	-0.011	-0.012	42.72	41.32	0.201	16.154	0.997	1.154	27.05	79.43
4	1	1.486	-5.00	313.91	1.581	-0.049	42.23	40.63	-0.003	-0.005	42.23	40.35	-0.031	-2.951	0.977	1.545	5.80	102.77
	2	1.511	-2.00	313.91	1.576	-0.060	41.97	40.37	-0.003	-0.004	41.97	40.09	-0.038	-3.502	0.978	1.541	4.03	102.95
	3	1.508	6.00	313.91	1.497	-0.032	41.73	40.22	-0.004	-0.005	41.74	39.96	-0.021	-2.187	0.976	1.461	6.38	99.89
	4	1.509	17.00	313.91	1.115	0.198	41.31	40.16	-0.011	-0.012	41.32	39.96	0.178	14.637	0.991	1.105	22.29	80.89
5	1	1.568	-4.00	313.91	1.717	-0.083	44.59	42.90	-0.002	-0.004	44.59	42.61	-0.048	-4.282	0.979	1.681	5.86	106.87
	2	1.505	1.00	313.91	1.601	-0.104	44.16	42.53	-0.002	-0.003	44.16	42.25	-0.065	-5.496	0.981	1.570	5.59	103.40
	3	1.500	6.00	313.91	1.512	-0.118	43.38	41.87	-0.001	-0.002	43.38	41.61	-0.078	-6.410	0.982	1.485	8.77	99.95
	4	1.501	7.00	313.91	1.124	0.130	42.61	41.47	-0.010	-0.011	42.62	41.27	0.116	9.800	0.979	1.100	12.02	85.16
6	1	1.494	5.00	313.91	1.554	-0.089	42.18	40.61	-0.002	-0.003	42.18	40.34	-0.064	-5.407	0.981	1.524	7.36	101.76
	2	1.501	4.00	313.91	1.574	-0.120	42.18	40.68	-0.001	-0.002	42.18	40.30	-0.076	-6.286	0.982	1.546	7.45	102.48
	3	1.482	1.00	313.91	1.626	-0.104	41.50	39.95	-0.002	-0.003	41.50	39.68	-0.068	-5.723	0.981	1.497	5.81	101.27
	4	1.486	9.00	313.91	1.244	0.098	41.47	40.19	-0.007	-0.009	41.48	39.97	0.047	3.654	0.973	1.210	9.71	90.17
7	1	1.486	5.00	313.91	1.636	-0.099	41.84	40.20	-0.002	-0.003	41.84	39.92	-0.061	-5.177	0.980	1.604	7.19	104.49
	2	1.477	0.00	313.91	1.631	-0.134	41.77	40.12	-0.001	-0.002	41.77	39.83	-0.082	-6.690	0.983	1.603	6.69	104.59
	3	1.473	0.00	313.91	1.579	-0.091	41.73	40.13	-0.002	-0.003	41.73	39.85	-0.058	-4.968	0.980	1.547	4.97	103.06
	4	1.481	-1.00	313.91	1.313	0.089	41.39	40.06	-0.008	-0.011	41.40	39.83	0.068	5.559	0.974	1.278	5.65	93.58
8	1			313.91														
	2			313.91														
	3			313.91														
	4			313.91														
9	1	1.492	13.00	313.91	1.678	0.054	41.59	39.89	-0.006	-0.011	41.60	39.59	0.032	2.366	0.973	1.633	13.21	103.49
	2	1.506	11.00	313.91	1.744	0.182	41.32	39.56	-0.010	-0.016	41.34	39.25	0.104	8.821	0.977	1.704	14.07	105.39
	3	1.498	12.00	313.91	1.570	0.228	41.25	39.65	-0.010	-0.016	41.27	39.37	0.145	12.241	0.984	1.545	17.08	98.88
	4	1.511	9.00	313.91	1.211	0.325	41.20	39.98	-0.010	-0.012	41.21	39.77	0.268	19.232	1.012	1.225	21.16	85.85
										Avg. Duct Static =		40.98						
		Yaw Avg. =4.06		Average Temp.									Pitch Avg. =2.04		Result Angle Avg. =9.51			Traverse Avg. Velocity in ft/s
		Std. Dev. =6.94		314	1.48	0.03	42.75	41.24					Std. Dev. =7.87		Std. Dev. =6.09			98.07

IP7_040053

Probes Point Velocity
101.11
101.58
101.16
101.23
101.48
101.95
101.95
102.48
102.27
101.56
101.64
101.53
101.28
102.20
102.12
102.15
103.77
101.71
101.63
101.71
101.59
101.83
101.27
101.37
101.37
101.08
100.94
101.22

101.62
102.14
101.86
102.24

Probes
Velocity in ft/s
101.72

From: <lboucher@bbpwr.com>
To: "James Nelson" <JIM-N@ipsc.com>, <Kenneth-N@ipsc.com>, <csimmons@bbpwr.c...
Date: 4/9/2003 9:19 AM
Subject: New Jordan Actuator IPSC

Riley Power (BPI) is please to offer for your consideration our firm price of four thousand eight hundred dollars, ($4,800.00) for a spare Jordan Actuator, model SM-5120-N-29/300-D001-F001.

Pricing is firm for thirty (30) days , FOB job site and includes freight.

Delivery is approximately four (4) weeks, however RPI will expedite this as much as possible in an attempt to improve delivery.

I trust this information meets your current needs. Please let me know how IPSC would like to proceed.

Regards

Larry